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Notice of Allowability	Application No.	Applicant(s)	
	10/500,203	ZOLLER ET AL.	
	Examiner	Art Unit	
	Yuanda Zhang	2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment on 9/19/07.
2. ☒ The allowed claim(s) is/are 1, 5, 6, 9-13 and 15-26.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

Examiner's Amendment

An examiner's amendment to the record appears below. Should the changes and/or additions to be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Joseph Gortych on 09/19/07.

The application has been amended as follows:

Claim 3 has been cancelled.

Claim 1 has been amended as follow:

A method comprising: generating pulses of light in a pulsed source of light, wherein each pulse of light includes at least one photon; propagating a first pulse of light generated in said pulsed source of light into a first ensemble having a first collective excitation state, wherein photons in said first pulse of light have an energy that can excite said first collective excitation; propagating a second pulse of light generated in said pulsed source of light into a second ensemble having a second collective excitation state, wherein photons in said second pulse of light have an energy that can excite said second collective excitation; receiving from said first ensemble and said second ensemble at an interferer for interfering light pulses substantially only photons resulting from generation of said first collective excitation and said second collective excitation; receiving at a first single photon detector and second single photon detector light pulses from said interferer propagated to said interferer from said first ensemble and said second ensemble and; detecting the interfered photons with a first or second photo detector and controlling said first photo detector and said second single photon detector with a photo detector controller; -- **and**

further comprising preventing photons not resulting from the generation of collective excitations in said first atomic ensemble and said second atomic ensemble from reaching said interferer by arranging a first filter in a first optical path between said first atomic ensemble and said interferer, and a second filter in a second optical path between said second ensemble and said interferer --.

The following is an examiner's statement of reasons for allowance:

Claim 1 is believed to be allowable as they have been amended to include limitations indicated as being allowable in the previous office action. The limitation of "preventing photons not resulting from generation of collective excitations in one of said first ensemble and said second ensemble from reaching said interferer with a first filter disposed between said first ensemble and said interferer" were not found to be known in the prior art, or an obvious combination of the prior art (Duan et al, a method of creating entanglement between first and second atomic ensembles, see previous office action, and Kimble et al'182 disclose a photo-detector controller, see Col. 11 lines 60-64 and figure 7).

Claims 5, 6, 9-13, 15-26 are also allowable as they are directly dependent on claim 1.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yuanda Zhang whose telephone number is 571-270-

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1439. The examiner can normally be reached on Monday-Thursday, Alternating Fri 8:30am-6:00p EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

YZ
09/19/07

